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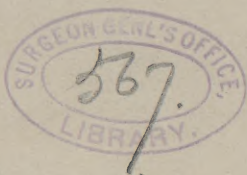
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## THE RELATION OF LARYNGEAL TO PULMONARY DISEASES.\*

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THIS topic was one among the list of suggested subjects for papers to be read at our meeting, and, at the request of a member of the committee, I have prepared a brief *résumé* of the question from the point of view that there is very little practical connection between diseases of the larynx and diseases of the lungs. As to syphilis of the larynx, I believe it has never been maintained that there is any connection between it and pulmonary disease. A very large number of these cases come under my observation each year at my clinic, and I have never yet seen a single case in which any involvement of the deeper air-passages could be traced to the morbid condition in the larynx. Syphilitic disease of the lung I have never met with, but in the few cases reported there is not, so far as I recall, a single case in which the pulmonary affection was complicated by, or seemed to give rise to, any laryngeal outbreak of the disease.

The same also may be said of carcinoma, lupus, and scrofula. The whole question, then, narrows itself down to catarrhal laryngitis and tuberculosis of the larynx. Acute catarrhal laryngitis I regard as a symptom of chronic laryngitis; in other words, the course of the chronic affection is characterized by recurrent attacks of mild acute inflammation, which I think rarely if ever occur unless there is a previously existing chronic disease.

Chronic laryngitis has filled a very large page in the literature of throat affections. Thirty years ago Garcia published his successful attempt to examine the larynx by ocular inspection during life, and thus gave a name to, and inaugurated the new specialty of,

\* Read before the American Climatological Association, May 5, 1884.



laryngology, setting a fashion which we have followed to the present day of basing our diagnoses on the results of a laryngoscopic examination, and restricting our therapeutic measures to topical agents applied directly to the laryngeal mucous membrane.

What is chronic laryngitis? Previous to the introduction of the laryngoscope it was a very commonly made statement that chronic laryngitis was due to syphilis or tuberculosis. I have even seen this statement made quite recently. That this assertion is utterly without foundation I need scarcely state. Syphilis in the larynx gives rise to certain definite, distinctive, and unmistakable lesions, such as mucous patches, superficial ulceration, deep ulceration, etc.; but these lesions are in no sense of the word inflammatory in character. So, also, in regard to tubercular disease of the larynx. This is a specific morbid process, characterized by the development of certain changes in the laryngeal mucous membrane which lead to ulceration and destruction of tissue; but these changes, whatever else they may be, certainly do not constitute an inflammatory process.

Chronic laryngitis, then, is neither a syphilitic or a tubercular disease; it is a simple catarrhal inflammation of the mucous membrane lining the larynx. The larynx, as the apparatus by which the voice is produced, is an organ of much importance in the economy. It is also of importance with regard to the function, which somewhat adventitiously belongs to it, by which the glottis is opened with each act of inspiration—the so-called respiratory function of the larynx. As constituting a portion of the respiratory tract which is liable to become the seat of a catarrhal inflammation, I think its importance has been much over-estimated, for it constitutes a comparatively small portion of the respiratory tract. The trachea is lined by a mucous membrane which, in superficial area, is from six to eight times greater than that of the larynx, and a catarrhal tracheitis I regard as of more serious import than a laryngitis, and as giving rise to symptoms of a more troublesome character, and yet tracheitis is rarely made a subject of clinical study. The symptoms of a catarrhal inflammation are hyperæmia, over-secretion, swelling, and, as the case may be, interference with function.

Hyperæmia in the larynx in itself does not give rise to any marked symptoms. Swelling or tumefaction is never present in a simple catarrhal laryngitis to an extent sufficient alone to cause other than some interference with phonation, or impairment of voice.

Over-secretion is one of the symptoms of laryngitis, and yet the



laryngeal mucous membrane, even in a state of chronic inflammation, possesses but a limited capacity for over-secretion. In the nasal cavities we find a mucous membrane which is endowed with a peculiar and very numerous set of glands which pour out a most abundant seromucous supply. This is demanded in order that in each act of respiration the air which reaches the lungs may be so far charged with moisture that it shall not rob the mucous membrane of the larynx and lower air-passages of its moisture, and thus produce irritation. The point which I wish to emphasize is, that the air which reaches the larynx and lower passages must be saturated or so far charged with moisture that it will not take up any moisture from these parts. This moisture must be, and is normally, supplied by the nasal membrane. When we remember that we take breath about twenty-five thousand times daily, we can form a proper estimate of the amount of secretion which normally must be poured out by the nasal mucous membrane. In the larynx, on the other hand, the amount of normal secretion is small. All that nature demands here is that the mucous glands and follicles shall pour out upon the surface of the membrane sufficient mucus to keep it in a soft, moist, and pliable condition, and this demand is easily supplied. In a chronic inflammation this normal secretion is, to an extent, increased, perhaps, but this is limited, because the capacity for secretion is limited.

Again, in regard to the impairment of function. Nature has endowed us with organs capable of doing far more work than they are ordinarily called upon to perform. This is true of most organs of the body, and is true of the larynx. The great function of the larynx is in phonation, and yet, as a rule, the ordinary function of phonation is not interfered with by a simple chronic laryngitis. Probably a majority of those present to-day have chronic laryngitis, more or less well marked, and yet few of us are conscious of any marked impairment of function therefrom. The singing voice calls into use the highest capacity of the larynx, and, therefore, demands that the laryngeal mucous membrane shall be absolutely in a condition of health, and hence, in the singer, a chronic laryngitis becomes a matter of serious import, but serious only to the voice. A chronic catarrhal laryngitis, then, in itself as a disease, is a comparatively trivial matter. I mean by this that, if we confine our attention entirely to the laryngeal membrane, we find that the symptoms which may arise from the morbid process are of slight importance. Furthermore, I think some light is thrown on the subject if we glance

at the literature of its treatment. Pretty much all of the mineral and vegetable astringents in the Pharmacopœia have been recommended for its cure, in solutions of all grades of strength; and sprays, brushes, sponges, probangs, and other devices have been used for carrying these agents to the affected parts. In a standard work published within four years, I have even seen recommended the application of a saturated solution of nitrate of silver. This latter suggestion would certainly seem to indicate that all other measures were inefficacious, for one would scarcely dare resort to this treatment unless as the very last resort. I once saw a patient—a physician—in whose larynx a one-hundred-and-twenty-grain solution of nitrate of silver had been used, and his condemnation of it was most emphatic.

At a recent meeting of laryngologists I listened to a discussion on the treatment of catarrhal laryngitis, the only practical interest in which was the candor and unanimity with which the conclusion was reached of the inefficacy of local applications to the larynx in this affection.

Chronic catarrhal laryngitis, then, I believe to be really a symptom rather than a disease. It is one of the results and accompaniments of catarrhal inflammation of the nasal mucous membrane, rather than a morbid process commencing in the laryngeal cavity. Many of the prominent symptoms which are often referred to the larynx are really to be directly traced to the nasal disorder. Just how this occurs I need not describe at length. The prominent cause of the laryngeal catarrh is in the interference with nasal respiration. Any of the causes which give rise to nasal stenosis will, sooner or later, cause laryngitis by the habitual mouth-breathing to which it gives rise; the dry, cold, and impure air reaching the larynx soon causes irritation and morbid changes in the membrane. The excessive secretion, also, from the nasal chambers, making its way into the fauces, passes down into the larynx, and acts as an additional source of irritation, and is, I think, often the source of the expectorated mucus which is supposed to be secreted by the larynx.

The extension of a catarrhal inflammation from the nasal passages to the larynx by direct continuity of tissue has been regarded as a frequent occurrence; but the more I see of these cases the more I am disposed to think that this does not occur. The mucous membrane of the lower pharynx, through which the inflammatory process is supposed to extend, is not a part of the air-passages properly, but is rather a part of the food-tract. It is covered with pavement epi-



thelium, the air-passages being lined with cylindrical epithelium, and presents a hard, resisting surface, designed to admit with impunity the passage of hard and often rude masses, which would be most irritating to the air-passages. Moreover, if the pharyngeal membrane is examined carefully, I think you will agree with me in saying that chronic pharyngitis, as involving the lower pharynx, is a comparatively rare disease.

As the result of a nasal stenosis, then, with mouth-breathing, and of over-secretion from the nasal passage, a chronic laryngitis develops as a symptom merely, and rarely, if ever, as a primary disease. In former years, when I treated this affection as a primary affection and made local applications to the laryngeal cavity, I gave temporary relief, and no more. And in this, I think, my experience was that of most others.

In the past three years I do not recall a single case of chronic laryngitis which has not been cured. During this period I have entirely abandoned all local applications to the larynx, and have treated the nasal disorder which I have found to be present in every case. In other words, I never succeeded in curing a case of chronic laryngitis until I commenced the practice of letting the larynx absolutely alone. I do not mean to say that I have made no topical application to the larynx in this time. I have done so not infrequently, but only as a matter of temporary relief, and, perhaps, at the solicitation of the patient. Several of these cases have been those of professional singers whose voices were breaking down as the result of laryngeal catarrh. The restoration of voice in each case was complete. This, I think, is to be regarded as a perfect test of the completeness of the cure.

In many cases, then, and I certainly believe they are a very large majority, if not all, chronic laryngitis is a symptom rather than a disease, regarding a symptom as a diseased condition which is caused by some morbid process which has set in primarily elsewhere and is only remedied by treating its source or cause; while a disease is a morbid condition which affects the part primarily, and is remedied by directing measures to that part. If this, then, is the correct view, the effect of a chronic laryngitis upon the lung-tissue is but slight. A morbid condition of the lungs may possibly give rise to a mild laryngeal catarrh, but the latter disease is of so trivial a character, and is so completely masked by the more serious pulmonary disorder, that it can scarcely be said to complicate it. The cause of the laryngitis is to be found in the constant and abnormal

irritation which is kept up in the larynx by the cough which accompanies the lung disorder. That the constant bathing of the laryngeal membrane by the more or less offensive discharge from the lung is a source of laryngeal disease, as stated by Louis, is very questionable. The answer, then, to the question of the relation between catarrhal laryngitis and pulmonary disease, I think, may be given with some positiveness. The relation is but very slight.

There is but one other question to which reference has been made, and that is concerning tubercular disease of the larynx. About 30 per cent. of cases of phthisis pulmonalis have been found, on post-mortem examination, to have been tubercular disease of the larynx. On the other hand, no single case of laryngeal tuberculosis has ever yet been described in which, on examination, the lungs did not present evidence of the same morbid process; and yet, it seems to me, there can be no question that the disease may occur primarily in the larynx and subsequently develop in the lung. This possibility has been questioned, many observers whose names carry much weight of authority insisting that the primary tuberculosis was in the lungs, and that, when the laryngeal disease developed, the lung disease was masked by it; or possibly that the tubercular process, while present in the lungs, was not recognizable by physical signs. It has always seemed to me that the question of the possibility of a primary laryngeal tuberculosis was an unnecessary one. There are few tissues or organs of the body in which tubercular disease may not occur, and, so far as I know, this possibility has never been questioned. When we come to the larynx, however, commended by Virchow to those "who wish to know true tubercle," the possibility of its primary development here is questioned. The mere fact of its presence at any time in the larynx is sufficient answer to the question. When it does develop in the larynx, it is as a new center of development, and not by extension by continuity of tissue. It would seem, then, to be utterly illogical to state that the larynx, of all the organs of the body, is exempt from a primary deposit of tubercle. What, then, is the influence of this primary laryngeal tuberculosis on the lungs? Sooner or later there will develop pulmonary phthisis. In all medical literature there is no case in which this has not occurred. That it stands in the direct relation of cause and effect can not be said, for undoubtedly, in every case, behind them both stands the constitutional condition which invites the disease; but that the laryngeal disease is a most active, exciting cause of the pulmonary phthisis can not be questioned.



As regards the influence of pulmonary phthisis in causing a laryngeal phthisis, not much can be added to what I have already said. Certainly by far the most active and most frequent appreciable cause of laryngeal phthisis is pulmonary phthisis. If there are any other active, direct causes of the disease, their connection is most difficult to trace. Do the constant cough, purulent discharge, etc., of the pulmonary disease act notably to produce the laryngeal disease? When we consider the large number of larynxes which are subjected to these deleterious influences, and the small percentage which develop tuberculosis, I think we are bound to conclude that their bad influence has been overestimated.





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